AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1.(currently amended) A method for producing the unleaded gasoline composition having a sulfur content of 1 mass ppm or less, an olefin content of 10 vol% or more and a research octane number of 89.0 or more, comprising:

a desulfurization step of subjecting a cracked naphtha fraction having a 5 vol% distillation temperature of 25°C or more, a 95 vol% distillation temperature of 210°C or less, an olefin content of 5 mass% or more, and a diene value of 0.3 g/100 g or less to a desulfurization treatment, the desulfurization treatment causing the cracked naphtha fraction to come in contact with a porous desulfurization agent having a sulfur sorption function in the presence of hydrogen under hydrogen partial pressure of 1 MPa or less; and

a blending step of mixing 25-90 vol% of the resulting desulfurized cracked naphtha fraction with 75-10 vol% of another gasoline base materials.

2. (original) The method for producing the unleaded gasoline composition according to claim 1, further comprising a diene-reducing step of reducing the diene content of the raw cracked naphtha fraction by causing the cracked naphtha fraction to come into contact with a diene-reducing catalyst in advance.

3. (original) The method for producing the unleaded gasoline composition according to claim 2, wherein the diene-reducing catalyst comprises at least one metal selected from group 8 elements in the periodic table.

4. (original) The method for producing the unleaded gasoline composition according to claim 3, wherein at least one metal contained in the diene-reducing catalyst is nickel or cobalt.

5. (cancelled)

6. (currently amended) The method for producing the unleaded gasoline composition according to claim [[5]] 1, wherein the porous desulfurization agent comprises at least one metal selected from copper, zinc, nickel, and iron.

7. (cancelled)

8. (previously presented) The method for producing the unleaded gasoline composition according to claim 1, wherein the cracked naphtha fraction is a light cracked naphtha fraction having a 5 vol% distillation temperature of 25-43°C, a 95 vol% distillation temperature of 55-100°C, an olefin content of 5 mass% or more, and a diene value of 0.3 g/100 g or less.

9. (original) The method for producing the unleaded gasoline composition according to claim 8, wherein the light cracked naphtha fraction is obtained by subjecting the cracked naphtha fraction to a diene-reducing treatment, followed by fractional distillation, or fractionating the cracked naphtha fraction, followed by a diene-reducing treatment, or simultaneous fractional distillation and diene-reducing treatment of the cracked naphtha fraction.

10. (original) The method for producing the unleaded gasoline composition according to claim 9, further comprising a pretreatment step of subjecting the raw fraction of the cracked naphtha fraction prior to or simultaneously with the fractional distillation for obtaining a light cracked naphtha fraction, or the raw fraction of the cracked naphtha fraction subjected to a diene-reducing treatment to increase the molecular weight of sulfur compounds therein.

11. (previously presented) The method for producing the unleaded gasoline composition according to claim 8, wherein the blending step comprises mixing 10-60 vol% of the light desulfurized cracked naphtha fraction with 90-40 vol% of another gasoline base materials, and the unleaded gasoline composition has a research octane number of 93.0 or more.

12. (original) An unleaded gasoline composition having a research octane number of 89.0 or more, a 50 vol% distillation temperature of 105°C or less, an olefin content of 10 vol% or more, a total sulfur content of 1 mass ppm or less, and a proportion of thiophene compounds to the total sulfur compounds of 50 mass% or more, as sulfur.

13. (original) The unleaded gasoline composition according to claim 12, having a research octane number of 93.0 or more.

14. (original) The unleaded gasoline composition according to claim 13, having a proportion of olefins having a boiling point of 35-100 °C to the total olefins of 90.0 vol% or more.

15. (original) The unleaded gasoline composition according to claim 13, having a proportion of total amount of

thiophene and 2-methylthiophene to the total sulfur compounds of 50 mass% or more, as sulfur.

16. (previously presented) The unleaded gasoline composition according to claim 12, having a thiol compounds content of 0.1 mass ppm or less, as sulfur.